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Donn E. Gabrielson

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FULBRIGHT & JAWORSKI L.L.P  
2200 ROSS AVENUE  
SUITE 2800  
DALLAS, TX 75201-2784

EXAMINER

CHOWDHURY, AFROZA Y

ART UNIT

PAPER NUMBER

2629

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,198	<b>Applicant(s)</b> GABRIELSON ET AL.	
	<b>Examiner</b> AFROZA Y. CHOWDHURY	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18, 19, 21-34 and 39-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 19, 21-34 and 39-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's amendment filed on **August 28, 2008** has been entered. Claims 1-44 are currently pending. Claims 17, 20, and claims 35-38 are withdrawn by the Applicant.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-8 and 21-26 are rejected under 35 U.S.C. 102(e) as being unpatentable by **Funakoshi et al.** (US Patent 6,894,670).

As to claim 1, Funakoshi et al. teaches a method for providing pseudo gray levels between gray levels on a color display, said method comprising:

selecting a gray level of said gray levels for a pixel, said gray level having each color drive setting for said pixel being equal (figs. 5, 6, col. 3, line 64 – col. 4, line 8, col. 4, lines 54-65); and

adjusting one or more of said color drive settings of said pixel to create a pseudo gray level, wherein said pseudo gray level will be perceived as falling between two gray levels of said gray levels (figs. 2, 6, 7, col. 2, line 53 – col. 3, line 5, col. 6, lines 51-59, col. 8, lines 36-60).

As to claim 2, Funakoshi et al. discloses a method wherein said one or more drive settings of said pixel are adjusted by one level (figs. 2, 7).

As to claim 3, Funakoshi et al. teaches a method wherein there are three drive settings for said pixel (fig. 7).

As to claim 4, Funakoshi et al. teaches a method wherein one drive setting differs from the other two drive settings by one level (fig. 7).

As to claim 5, Funakoshi et al. teaches a method wherein said three drive settings are red, green and blue (fig. 7).

As to claim 6, Funakoshi et al. teaches a method wherein said red drive setting is adjusted (fig. 7, col. 9, lines 30-51).

As to claim 7, Funakoshi et al. teaches a method wherein said green drive setting is adjusted (fig. 7, col. 9, lines 30-51).

As to claim 8, Funakoshi et al. teaches a method wherein said red drive setting and said green drive setting are adjusted (fig. 7, col. 9, lines 30-51).

As to claim 21, Funakoshi et al. discloses a method of enhancing gray scales on a color display, said method comprising:

capturing an image to be represented as multiple shades of gray (figs. 5, 6, col. 1, lines 11-20, col. 3, line 64 - col. 4, line 8, col. 4, lines 54-65); and

mapping said multiple shades of gray of said image to provide a depth of gray levels for a pixel beyond what is available in gray scale on said color display (figs. 2, 6, 7, col. 2, line 53 – col. 3, line 5, col. 6, lines 51-59, col. 8, lines 36-60).

As to claim 2, Funakoshi et al. teaches a method wherein said multiple shades of gray are mapped to both gray scale levels supported by said color display and color pixels determined to provide levels of gray between said gray scale levels (figs. 2, 6, 7, col. 2, line 53 – col. 3, line 5, col. 6, lines 51-59, col. 8, lines 36-60).

As to claim 23, Funakoshi et al. teaches a method comprising: adjusting said color pixels to provide levels of gray between said gray scale levels (figs. 2, 6, 7, col. 2, line 53 – col. 3, line 5, col. 6, lines 51-59, col. 8, lines 36-60).

As to claim 24, Funakoshi et al. teaches a method wherein said color pixels are represented by three drive settings (fig. 7).

As to claim 25, Funakoshi et al. teaches a method wherein said three drive settings are red, green and blue (fig. 7).

As to claim 26, Funakoshi et al. teaches a method comprising: adjusting said three drive settings based on the level of brightness needed for display (figs.2, 6, 7, col. 2, line 53 – col. 3, line 5, col. 6, lines 51-59, col. 8, lines 36-60).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-16, 18, 19, and 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant Admitted Prior Art** (herein after AAPA) in view of **Martin et al.** (US Patent 6,714,206).

As to claim 9, AAPA teaches a method of enhancing gray scale output on a color display, said method comprising: entering an input number that identifies a level of gray to be displayed (fig. 1, [0003]).

AAPA does not teach extracting a smaller ranged number from said input number and dividing said input number by a factor to obtain a displayable gray scale number and adjusting said displayable gray scale number based on a remainder obtained from said dividing.

Martin et al. discloses a method of extracting a smaller ranged number from said input number, wherein said smaller ranged number is associated with a true gray value (col. 1, lines 28-40, col. 5, line 67 – col. 6, line 11);

dividing said input number by a factor to obtain a displayable gray scale number (figs. 11, 12, col. 1, lines 40-53, col. 7, lines 1-7, lines 37-39); and

adjusting said displayable gray scale number based on a remainder obtained from said dividing (fig. 13, col. 1, lines 40-53, col. 4, lines 5-17, col. 8, lines 14-54).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to improve AAPA's color display by incorporating the idea of Martin et al. of extracting a smaller ranged number from said input number and dividing said input number by a factor to obtain a displayable gray scale number and adjusting displayable gray scale number based on a remainder obtained from said dividing to improve color intensity and brightness.

As to claim 10, AAPA (as modified by Martin et al.) teaches a method wherein said input number identifies one of 256 gray levels that can be perceived (fig. 1 in AAPA, col. 1, lines 28-40 in Martin et al.).

As to claim 11, AAPA (as modified by Martin et al.) teaches a method wherein said smaller range number is associated with one of 64 true gray values that can be displayed on said color display (fig. 1, [0003] in AAPA, col. 1, lines 28-40 in Martin et al.).

As to claim 12, Martin et al. teaches a method wherein said factor is 4 (figs. 12, 13, col. 1, lines 28-40).

As to claim 13, Martin et al. discloses a method wherein said remainder indicates how much brightness is needed for said displayable gray scale number (fig. 13, col. 8, lines 14-54).

As to claim 14, Martin et al. teaches a method comprising: outputting said true gray value if said remainder is zero (fig. 13, col. 8, lines 14-18).

As to claim 15, Martin et al. teaches a method comprising: increasing red, green or blue outputs associated with said displayable gray scale number if said remainder is not zero (fig. 13, col. 8, lines 14-54).



As to claim 16, Martin et al. teaches a method comprising: adjusting said red output by one if said remainder is one (fig. 13, col. 8, lines 14-54).

As to claim 18, Martin et al. teaches a method comprising: adjusting said green output by one if said remainder is two (fig. 13, col. 8, lines 14-54).

As to claim 19, Martin et al. teaches a method comprising: adjusting said red and green outputs by one if said remainder is three (fig. 13, col. 8, lines 14-54).

Claim 39 is rejected the same as claim 9 above.

Claims 40-44 are rejected the same as claims 14-16, 18, and 19, respectively.

6. Claims 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant Admitted Prior Art** (herein after AAPA) in view of **Martin et al.** (US Patent 6,714,206) and in further view of **Rozzi** (US Pub. 2002/0180751).

All the claim limitations of claim 27 are rejected the same as claim 9 except:  
a field programmable gate array (FPGA) for generating an input number, and  
a color display for receiving said adjusted color outputs from said FPGA.

AAPA (as modified by Martin et al.) does not specifically teach a field programmable gate array (FPGA) for generating an input number, and a color display for receiving said adjusted color outputs from said FPGA.

Rozzi discloses a field programmable gate array (FPGA) (fig. 1(12)) for generating an input number (fig. 9, [0032], [0035]), and

a color display (fig. 1(10)) for receiving said adjusted color outputs from said FPGA (fig. 9, [0032], [0035]).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to include Rozzi's field programmable gate array (FPGA) for generating an input number, and color display for receiving said adjusted color outputs from said FPGA into the display device of AAPA (as modified by Martin et al.) in order to display accurate color (see [0022], [0032] in Rozzi).

As to claim 28, Martin et al. teaches a system wherein said input number identifies a pseudo gray level to be displayed (figs. 11-13).

Claims 29 and 30 are rejected the same as claims 9 and 14, respectively.

As to claim 31, Martin et al. teaches a system wherein said color outputs to be adjusted are associated with a red part and a green part of a pixel (fig. 13).

As to claim 32, AAPA (as modified by Martin et al. and Rozzi) teaches a system wherein said FPGA adjusts said color output associated with a red part of a pixel by one if said remainder is one ([0032], [0035] in Rozzi, fig. 13 in Martin et al.).

As to claim 33, AAPA (as modified by Martin et al. and Rozzi) teaches a system wherein said FPGA adjusts said color outputs associated with a red part and green part of a pixel by one if said remainder is three ([0032], [0035] in Rozzi, fig. 13 in Martin et al.).

As to claim 34, AAPA (as modified by Martin et al. and Rozzi) teaches a system wherein said FPGA adjusts said color output associated with a green part of a pixel by one if said remainder is two ([0032], [0035] in Rozzi, fig. 13 in Martin et al.).

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-16, 18, 19, 21-34, and 39-44 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AFROZA Y. CHOWDHURY whose telephone number is (571)270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC  
12/17/2008

/Bipin Shalwala/  
Supervisory Patent Examiner, Art  
Unit 2629